

- 28 -

WE CLAIM:

1. For an information retrieval system coupled to at least one commodity analysis system configured to analyze at least one commodity to generate commodity data comprising at least
5 one commodity characteristic, a method of managing the commodity data for a chain of production in which one or more commodities are used in one or more production steps, the method comprising:
 receiving the commodity data from the at least one
10 commodity analysis system for discrete quantities of at least one commodity used or produced by the chain of production;
 storing the commodity data to the information retrieval system; and
15 determining commodity information in accordance with the contents of the information retrieval system.
2. The method as claimed in claim 1 wherein the at least one commodity comprises one of an agricultural commodity, an aquacultural commodity, an industrial commodity, a biological
20 commodity and a pharmaceutical commodity.
3. The method as claimed in claim 1 wherein the production steps comprise one or more of acquiring, blending, refining, and transporting the discrete quantities and wherein the commodity data is generated in response to a production step.
- 25 4. The method as claimed in claim 1 including providing the commodity information to determine a use of at least a portion of at least one of the discrete quantities in the chain of production.

- 29 -

5. The method as claimed in claim 4 wherein the use is defined in accordance with a standard responsive to one or more commodity characteristics.

6. The method as claimed in claim 5 wherein the standard
5 defines one of an identity preservation program, a specialty trait tracking program and a food safety certification program.

7. The method as claimed in claim 1 wherein said determining commodity information includes tracing commodity data for
10 particular discrete quantities as said quantities flow through said chain of production.

8. The method as claimed in claim 7 wherein instances of said commodity data are generated for a particular discrete quantity as the quantity flows through the chain of production
15 and wherein said tracing comprises associating said instances of the commodity data with one another in the information retrieval system.

9. The method as claimed in claim 1 wherein the at least one commodity characteristic includes at least one of a measured
20 characteristic of the particular discrete quantity and a secondary characteristic determined for the particular discrete quantity.

10. The method as claimed in claim 1 wherein the commodity data includes one or more source data identifying
25 characteristics of the source of the commodity.

11. The method as claimed in claim 1 including transmitting an update to at least one of the commodity analysis systems.

- 30. -

12. The method of claim 11 wherein the update comprises at least one of a software update, a lease update, and a data update.

13. The method as claimed in claim 1 including providing a user interface for obtaining commodity information determined from commodity data stored to the information retrieval system.

14. A method of managing commodity data for a chain of production in which one or more commodities are used in one or more process steps, the method comprising the steps of:

generating commodity data for a plurality of discrete quantities of at least one commodity used or produced by the chain of production, the commodity data comprising at least one commodity characteristic produced by analyzing the particular discrete quantity using a commodity analysis system; and

transmitting the commodity data for storing to an information retrieval system configured for receiving commodity data from a plurality of commodity analysis systems.

15. The method as claimed in claim 14 wherein the at least one commodity comprises one of an agricultural commodity, an aquacultural commodity, an industrial commodity, a biological commodity and a pharmaceutical commodity.

16. The method as claimed in claim 14 wherein the production steps comprise one or more of acquiring, blending, refining, and transporting the discrete quantities and wherein the commodity data is generated in response to a production step.

- 31 -

17. The method as claimed in claim 14 comprising retrieving commodity information in accordance with the content of the information retrieval system.

18. The method as claimed in claim 17 comprising determining
5 a use in the chain of production of at least a portion of at least one of the discrete quantities in response to said commodity information.

19. The method as claimed in claim 18 wherein the use is defined in accordance with a standard responsive to one or
10 more commodity characteristics.

20. The method as claimed in claim 19 wherein the standard defines one of an identity preservation program, a specialty trait tracking program and a food safety certification program.

15 21. The method as claimed in claim 17 wherein retrieving commodity information includes tracing commodity data for particular discrete quantities as said quantities flow through said chain of production.

22. The method as claimed in claim 14 wherein the at least
20 one commodity characteristic comprises at least one of a measured characteristic of the particular discrete quantity and a secondary characteristic determined for the particular discrete quantity.

23. The method as claimed in claim 14 wherein generating
25 commodity data comprises generating measurement data and examining said measurement data in accordance with a library of comparative data for determining commodity characteristics.

- 32 -

24. The method as claimed in claim 14 wherein the commodity analysis systems are configured to determine the commodity characteristics in accordance with artificial intelligence.

25. The method as claimed in claim 14 wherein generating
5 commodity data includes the step of entering commodity data using a user interface of said commodity analysis system.

26. The method as claimed in claim 25 comprising correlating commodity data entered using the interface with commodity data produced by an analysis.

10 27. The method as claimed in claim 14 wherein at least one commodity analysis system is configured to periodically gather commodity data from a plurality of commodity analyses into a batch and wherein said transmitting commodity data comprises transmitting said batch.

15 28. The method as claimed in claim 14 comprising receiving an update transmitted from the information retrieval system to the commodity analysis system.

20 29. The method as claimed in claim 28 wherein the update comprises at least one of a software update, a lease update, and a data update.

30. For an information retrieval system coupled to a commodity analysis system configured to analyze at least one commodity to generate commodity data for a chain of production in which one or more commodities are used in one or more
25 process steps, a method of managing the commodity analysis system comprising:

receiving commodity data at the information retrieval system from the commodity analysis system for discrete

- 33 -

quantities of at least one commodity used or produced by the chain of production; and tracking a use of the commodity analysis system.

31. The method as claimed in claim 30 including invoicing in response to the determined use of the commodity analysis system.

32. The method as claimed in claim 30 including transmitting an update to the commodity analysis system.

33. The method of claim 32 wherein the update comprises at least one of a software update, a lease update, and a data update.

34. The method as claimed in claim 30 including configuring the commodity analysis system to at least one of: automatically transmit commodity data to the information retrieval system, receive an update from the information retrieval system, and fail to generate commodity data in the absence of a current permission defined by said information retrieval system.

35. A computer system for managing commodity data for a chain of production in which one or more commodities are used in one or more process steps, the system comprising:

an information retrieval system for storing commodity data for a plurality of discrete quantities of at least one commodity used or produced by the chain of production, the commodity data for each particular discrete quantity comprising at least one commodity characteristic; and

- 34 -

5 a plurality of commodity analysis systems coupled to the data storage system for generating commodity data to be stored by the data storage system, each commodity analysis system operating under control of a program to perform commodity analysis and storage operations as identified by said program; and each commodity analysis system including at least one instrument for analyzing the commodity for determining the at least one commodity characteristic.

10 36. The system as claimed in claim 35 wherein each said commodity analysis system comprises a user interface for receiving commodity data for storing to said information retrieval system in association with commodity data determined by analysis.

15 37. The system as claimed in claim 35 wherein said commodity analysis system is adapted via a user interface for retrieving commodity information from said information retrieval system.

20 38. The system as claimed in claim 37 wherein the commodity information is retrieved for determining a use in the chain of production of at least a portion of at least one of the discrete quantities.

25 39. The system as claimed in claim 37 wherein said information retrieval system is configured to enable tracing of commodity data as particular quantities of a commodity flow through said chain of production.

40. The system as claimed in claim 35 wherein the commodity analysis system is configured for determining at least one commodity characteristic for evaluating compliance with a commodity standard.

- 35 -

41. The system as claimed in claim 40 wherein the commodity standard defines one of an identity preservation program, a specialty trait tracking program and a food safety certification program.

5 42. The system as claimed in claim 35 wherein the commodity data includes source data identifying the source of the commodity.

43. The system as claimed in claim 35 wherein the commodity analysis systems are configured to:

10 analyze one or more commodities to provide measurement data for each commodity analyzed;
 examine said measurement data to determine at least one commodity characteristic; and
 generate the commodity data for particular discrete
15 quantities of the one or more commodities.

44. The system as claimed in claim 43 wherein the commodity analysis systems are configured to examine said measurement data in accordance with a library of comparative data for determining commodity characteristics.

20 45. The system as claimed in claim 44 wherein the commodity analysis systems are configured to use one or more artificial intelligence programs for determining commodity characteristics.

46. The system as claimed in claim 35 wherein at least one
25 commodity analysis system is configured to periodically gather commodity data from a plurality of commodity analyses into a batch and transmit the batch to said information retrieval system for storing said commodity analysis data.

- 36 -

47. The system as claimed in claim 35 wherein the information retrieval system includes a billing component for billing a use of the commodity analysis systems.

5 48. The system as claimed in claim 35 wherein the information retrieval system comprises an update component to transmit an update to at least one of the commodity analysis systems, the update comprising one of a software update, a lease update and a data update.

10 49. The system as claimed in claim 35 wherein at least one commodity analysis system comprises a regulation component to regulate the generation of commodity analysis data in response to a current permission defined by the information retrieval system.

15 50. For an information retrieval system coupled to at least one commodity analysis system configured to analyze at least one commodity to generate commodity data comprising at least one commodity characteristic, a computer program product having a computer readable medium tangibly embodying computer executable code to manage the commodity data for a chain of
20 production in which one or more commodities are used in one or more production steps, the computer program product comprising:

25 code for receiving the commodity data from the at least one commodity analysis system for discrete quantities of at least one commodity used or produced by the chain of production;

code for storing the commodity data to the information retrieval system; and

30 code for determining commodity information in accordance with the contents of the information retrieval system.

- 37 -

51. The computer program product as claimed in claim 50 wherein the at least one commodity comprises one of an agricultural commodity, an aquacultural commodity, an industrial commodity, a biological commodity and a pharmaceutical commodity.

52. The computer program product as claimed in claim 50 wherein the production steps comprise one or more of acquiring, blending, refining, and transporting the discrete quantities and wherein the commodity data is generated in response to a production step.

53. The computer program product as claimed in claim 50 including code for providing the commodity information to determine a use of at least a portion of at least one of the discrete quantities in the chain of production.

54. The computer program product as claimed in claim 53 wherein the use is defined in accordance with a standard responsive to one or more commodity characteristics.

55. The computer program product as claimed in claim 54 wherein the standard defines one of an identity preservation program, a specialty trait tracking program and a food safety certification program.

56. The computer program product as claimed in claim 50 wherein said code for determining commodity information includes code for tracing commodity data for particular discrete quantities as said quantities flow through said chain of production.

57. The computer program product as claimed claim 56 wherein instances of said commodity data are generated for a

- 38 -

particular discrete quantity as the quantity flows through the chain of production and wherein said code for tracing comprises code for associating said instances of the commodity data with one another in the information retrieval system.

5 58. The computer program product as claimed in claim 50 wherein the at least one commodity characteristic includes at least one of a measured characteristic of the particular discrete quantity and a secondary characteristic determined for the particular discrete quantity.

10 59. The computer program product as claimed in claim 50 wherein the commodity data includes one or more source data identifying characteristics of the source of the commodity.

15 60. The computer program product as claimed in claim 50 including code for transmitting an update to at least one of the commodity analysis systems.

61. The computer program product of claim 60 wherein the update comprises at least one of a software update, a lease update, and a data update.

20 62. The computer program product as claimed in claim 50 including code for providing a user interface for obtaining commodity information determined from commodity data stored to the information retrieval system.

25 63. A computer program product having a computer readable medium tangibly embodying computer executable code to manage commodity data for a chain of production in which one or more commodities are used in one or more process steps, the computer program product comprising:

- 39 -

code for generating commodity data for a plurality of discrete quantities of at least one commodity used or produced by the chain of production, the commodity data comprising at least one commodity characteristic produced by analyzing the particular discrete quantity using a commodity analysis system; and

code for transmitting the commodity data for storing to an information retrieval system configured for receiving commodity data from a plurality of commodity analysis systems.

64. The computer program product as claimed in claim 63 wherein the at least one commodity comprises one of an agricultural commodity, an aquacultural commodity, an industrial commodity, a biological commodity and a pharmaceutical commodity.

65. The computer program product as claimed in claim 63 wherein the production steps comprise one or more of acquiring, blending, refining, and transporting the discrete quantities and wherein the commodity data is generated in response to a production step.

66. The computer program product as claimed in claim 63 comprising code for retrieving commodity information in accordance with the content of the information retrieval system.

67. The computer program product as claimed in claim 66 wherein said code for retrieving commodity information is configured for determining a use in the chain of production of at least a portion of at least one of the discrete quantities in response to said commodity information.

- 40 -

68. The computer program product as claimed in claim 67 wherein the use is defined in accordance with a standard responsive to one or more commodity characteristics.

5 69. The computer program product as claimed in claim 68 wherein the standard defines one of an identity preservation program, a specialty trait tracking program and a food safety certification program.

10 70. The computer program product as claimed in claim 66 wherein the code for retrieving commodity information is configured for tracing commodity data for particular discrete quantities as said quantities flow through said chain of production.

15 71. The computer program product as claimed in claim 63 wherein the at least one commodity characteristic comprises at least one of a measured characteristic of the particular discrete quantity and a secondary characteristic determined for the particular discrete quantity.

20 72. The computer program product as claimed in claim 63 wherein said code for generating commodity data comprises code for generating measurement data and examining said measurement data in accordance with a library of comparative data for determining commodity characteristics.

25 73. The computer program product as claimed in claim 72 wherein said code for generating measurement data and examining said measurement data comprises an artificial intelligence program.

74. The computer program product as claimed in claim 63 wherein said code for generating commodity data includes code

- 41 -

providing a user interface to enter commodity data to said commodity analysis system.

75. The computer program product as claimed in claim 74 comprising code for correlating commodity data entered using the interface with commodity data produced by an analysis.

76. The computer program product as claimed in claim 63 comprising code for periodically gathering commodity data from a plurality of commodity analyses into a batch and wherein said code for transmitting commodity data is configured to transmit said batch.

77. The computer program product as claimed in claim 63 comprising code for receiving an update transmitted from the information retrieval system to the commodity analysis system.

78. The computer program product as claimed in claim 77 wherein the update comprises at least one of a software update, a lease update, and a data update.

79. For an information retrieval system coupled to a commodity analysis system configured to analyze at least one commodity to generate commodity data for a chain of production in which one or more commodities are used in one or more process steps, a computer program product having a computer readable medium tangibly embodying computer executable code to manage the commodity analysis system comprising:

code for receiving commodity data at the information retrieval system from the commodity analysis system for discrete quantities of at least one commodity used or produced by the chain of production; and

code for tracking a use of the commodity analysis system.

- 42 -

80. The computer program product as claimed in claim 79 including code for invoicing in response to the determined use of the commodity analysis system.

81. The computer program product as claimed in claim 79
5 including code for transmitting an update to the commodity analysis system.

82. The computer program product as claimed in claim 81 wherein the update comprises at least one of a software update, a lease update, and a data update.

10 83. The computer program product as claimed in claim 82 including code for configuring the commodity analysis system to at least one of: automatically transmit commodity data to the information retrieval system, receive an update from the information retrieval system, and fail to generate commodity
15 data in the absence of a current permission defined by said information retrieval system.